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# **Epidemiology of Primary and Secondary Syphilis in Nashville and Davidson County, Tennessee**

(Preliminary Findings)

An Investigative Report on the Current Syphilis Epidemic  
in Nashville and Davidson County, Tennessee

Part One

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## EXECUTIVE SUMMARY

<b>Background</b>	<p>Syphilis is an acute and chronic sexually transmitted disease. During the years 1986-1990, an epidemic of syphilis occurred throughout the nation. Syphilis rates began to decline in 1991 and have declined each year since that time in the United States. However, Nashville's syphilis trend differs considerably from the national trend. It has been and remains an important public health problem in the community.</p> <p>In 1996, the syphilis incidence increased substantially with 36.4 cases per 100,000 persons, a 99% increase compared to 1995. This increase reversed a five-year decline in the primary and secondary (P &amp; S) syphilis incidence rate in Nashville. The increase is in contrast to the nation's and state's declining syphilis trends. Therefore, it made Nashville's relative ranking of P &amp; S syphilis incidence rate among 64 cities of more than 200,000 population in the United States from eleventh highest in 1990 to fifth highest in 1996 and third highest in 1997.</p>
<b>Objectives</b>	<ol style="list-style-type: none"><li>1. Describe past and current trends of syphilis in Nashville, TN;</li><li>2. Provide epidemiology of the current syphilis epidemic in Nashville, TN.</li></ol>
<b>Methods</b>	<p>Ten-year P &amp; S syphilis surveillance data from the Tennessee Department of Health and twenty-two year historical P &amp; S syphilis data from the Centers for Disease Control and Prevention were analyzed. Long-term and current trends were examined. Incidence rates by age, race, gender, planning district, and census tract were calculated and geographical analyses were performed by planning districts and census tracts.</p>
<b>Results</b>	<p>Long term trends suggests that syphilis remains an important public health problem in Nashville, Tennessee.</p> <p>Current trends revealed that both reported cases and incidences of P &amp; S syphilis in Nashville increased during 1988-1997. Specifically, a sharp increase of incidence rate began in 1988, reaching its peak in 1990. Followed by a steady decline for five years, it then increased again in 1996 and continued in 1997. Males and blacks were disproportionately affected by syphilis. While the gap between males and females was narrowing, the gap between whites and blacks was widening. The 20-29 age group was the most affected sub-group among all age groups.</p> <p>The 1996-1997 syphilis epidemic presents a distinct epidemiological profile. Six features have been observed.</p>

1. Male and females were almost equally affected in the 1996-1997 epidemic (males 51%, females 49%) while the ten-year trend (1988-1997) showed females were less affected than males (males 55%, females 45%).
2. Racial distribution in the 1996-1997 epidemic demonstrated a wider racial gap. Blacks comprised 90.4% of all reported cases while whites comprised 9.3% of cases (ten-year trend: blacks 87%, whites 13%).
3. In terms of age distribution, the age of reported cases increased noticeably.
  - a. The average age of cases in the 1996-1997 epidemic was older than that during the ten-year (1988-1997) time (33 years versus 31.8 years).
  - b. The age range increased. The age difference between oldest cases and youngest cases was 58.5 years during this epidemic while the ten-year trend showed an average age difference of 52.2 years.
  - c. The 30-39 age group had both the highest number of cases and the highest incidence rate in this epidemic while the ten-year trend documented that the 20-29 age group was the most affected age group in both number and incidence rate.
4. Looking at the time of diagnosis, a relatively higher number of cases were diagnosed in March, July, and October during 1996-1997.
5. The places with the highest P & S syphilis incidence rate were the planning districts 8 and 9, i.e., North Nashville and Downtown. At the census tract (CT) level, fifteen census tracts in downtown and its adjacent areas were identified as the hyper-endemic areas.
6. Compared with pre-epidemic time, the two groups with the largest increase of rates were black females and the 15-19 age group. Although Joelton, Bellevue, and Berry Hill/Woodbine were the three planning districts with the largest percentage increase of rates, the core areas were still Downtown and North Nashville. Five census tracts with a large increase of rate were CTs 148.00, 149.00, 160.00, 162.00, and 128.00.

## **Discussion & Conclusion**

Factors influencing the distribution and trends of syphilis are 1) biologic factors; 2) sexual behaviors; 3) biomedical factors; 4) availability of and access to health care; 5) health care seeking behaviors; 6) public health efforts to prevent and control syphilis; 7) population factors; and 8) socio-cultural factors. Examination of these factors in the 1996-1997 epidemic found that biologic factors and biomedical factors were unlikely to be associated with this epidemic. Further studies are needed to determine if the remaining factors are contributing to the current epidemic.

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